

COAST TO CACTUS WEATHER EXAMINER

NATIONAL WEATHER SERVICE - SAN DIEGO



THE NATIONAL WEATHER SERVICE SPOTTER NEWSLETTER FOR
EXTREME SOUTHWESTERN CALIFORNIA

It's Hot, and not only in California!

A heat wave gripped southern California during the weekend of July 22 and 23 as strong high pressure covered the entire western US, and east flow aloft covered the region, bringing desert air to places even near the coast. This weekend was just part of a long hot summer over the region—as well as at many other locations in the world. The heat peaked on Saturday, July 22, when the highest recorded temperatures ever (for any date) occurred in at least three locations. This included the San Diego Wild Animal Park, which had a 114 degree temperature, El Cajon, which hit 113 and Escondido, which hit 112. La Mesa also tied their all-time record of 109. San Diego's Lindbergh Field, with its normally very mild coastal climate, reached 99, its highest temperature since a 100-degree reading in September 1989. In the usually very hot deserts, it was even a bit too hot for the rattlesnakes and cacti (and, of course, the human residents) as Palm Springs reached 121 (a record for the date, and only 2 degrees away from their all-time high).



The summer of 2006 is rivaling some of the hot summers back in the early 1980s. San Diego Lindbergh Field had the 3rd hottest June with an average daily temperature of 70.8 degrees (only behind #1 1981 and #2 1978). As of late July, Lindbergh Field was having the second hottest July on record (only behind #1 1984). According to the Climate Prediction Center (the branch of the National Weather Service which does long-term forecasts), August is predicted to also be hotter than normal across Southern California.

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This Southern California heat wave was not just a little blip on the map--many places around the world have seen an unusually hot summer. The entire West Coast has been hot this summer, with normally cool (and mostly un-air-conditioned) Portland, Oregon having numerous days in the 90s, and even several days over 100 (including 104 on July 21). Seattle has also had numerous days in the 90s this summer. The normally foggy cool Central Coast of California has been able to stake a claim to some of the sunshine that most of the rest of the state sees, while a short drive inland, temperatures have been over 100 there (or over 110 in not-so-interior places like Paso Robles or Morgan Hill). One small town in South Dakota tied that state's all-time record high of 120.

On the other side of the pond, a spot in the United Kingdom

(usually known for its chilly climate) broke their all-time national July high (97), and people there are more than just a bit worried that August could be like August 2003 (when one spot in Kent experienced a UK-record 101-degree high, and tens of thousands of people died from the heat and heat-related illnesses on the European mainland). Berlin, Germany (another normally cool place where air-conditioning is a mostly foreign concept) reached 99 degrees in July. Meanwhile, the first six months of this year (January through June) were the hottest ever for the first half of any year in the United States, and that doesn't include data from July.

Is this all due (at least partly) to global warming? Quite likely. When one particular region is unusually hot, then that is usually just because of a certain weather pattern (like a ridge of high pressure which lies between two troughs of low pressure), but when many different regions are unusually hot at the same time, that is a sign that global warming is playing at least some role in the heat. But whether or not global warming is one of the causes, one thing we know for sure: it has been quite a hot summer so far in Southern California!

2005-2006 Seasonal Rainfall

Seasonal precipitation ranged from about half of normal to roughly normal amounts. A dry fall and winter were followed by a wet spring, but the spring could not make up the deficit. The following table shows the seasonal precipitation and how it compares to normal.

Location	05-06 Season	Normal	% of Normal
San Diego/Lindbergh Field	5.42 inches	10.77 inches	50 percent
Santa Ana/John Wayne	7.59	12.76	59
Palm Springs Airport	3.32	5.26	63
Campo	10.14	15.58	65
Ramona Airport	11.02	16.41	67
Riverside Airport	7.10	10.22	69
Oceanside Marina	7.74	11.13	70
Ontario Airport	12.17	14.77	82
Idyllwild	23.01	27.80	83
Fullerton Airport	9.66	11.23	86
Palomar Observatory	27.56	29.96	92
Palmdale	7.09	7.36	96
Lake Arrowhead	43.01	41.66	103
Big Bear Lake	21.82	21.15	103

At San Diego Lindbergh Field, the 2005-2006 rainfall season ranks as the 19th driest season on record (since 1850). Listed below are the previous five rainfall seasons:

2004-2005 22.49 (3rd wettest on record)
 2003-2004 5.18 (16th driest on record)
 2002-2003 10.62
 2001-2002 3.02 (1st driest on record)
 2000-2001 8.61

We Still Want You for the Mesonet

We continue to work on obtaining vital weather information that will increase the accuracy of our forecasts and warnings. The hourly data collected from new stations has added great value to our abilities.

You can learn more about the program and how to apply by going to the following link:

<http://newweb.wrh.noaa.gov/sgx/cpm/sdm.php?wfo=sgx>

We are looking for more data especially in certain locations. If you have or know of reliable weather equipment reporting real-time data in these areas, please let me know (email miguel.miller@noaa.gov).

- Desert portion of San Diego County (Borrego Springs, Canebrake, Ocotillo Wells)
- Pine Valley, Boulevard, Jacumba, etc.
- Hemet area
- San Jacinto Mountains (Idyllwild, Pinion Pines, Lake Hemet-Garner Valley, Aguanga, etc.)
- Lake Arrowhead, Crestline, Running Springs, etc.
- Big Bear Lake, Sugarloaf, Baldwin Lake, Forest Falls, etc.
- Lucerne Valley and Johnson Valley, Helendale
- San Bernardino, Yucaipa, Redlands, Highland
- Rancho Cucamonga, Upland, Fontana
- Santa Ana, Anaheim, Yorba Linda, Brea, Orange, anywhere in southern Orange Co.
- Imperial Beach, Chula Vista, National City, Encanto, City Heights
- La Mesa, El Cajon, Spring Valley

Quarterly Summary

April

The cool and wet pattern that prevailed during March continued into April as numerous weather systems moved through a standing long-wave trough position on the west coast. The heaviest storm occurred during the first week, followed by several weak systems through the middle of the month. Average monthly temperatures ranged from near normal at the coast, to three-to-four degrees below normal inland.

On the 1st, a weak trough, preceded by upslope flow, brought mostly light amounts of rain, if any, except for the south slopes of the San Bernardino Mountains where from ½ to 1½ inches fell. A large area of low pressure brought widespread moderate to locally heavy rain and mountain snow on the 4th and 5th. On the 14th, a cut-off low southwest of San Diego brought ¼ to ½ inch rains to most of the area with some coastal slopes and foothills exceeding one inch. On the 22nd and 23rd, an upper level trough brought showers with mostly light amounts of rain west of the mountains. Rainfall ranged from a trace to ¼ inch on the coasts and valleys, to ¼ to ½ inch on the coastal slopes and foothills. During the final few days of the month, a cut-off low dropped south and off the coast, with periods of light rain. Most amounts were under ¼ inch, however a few spots on the coastal slopes got between ¼ and ½ inch. Monthly rainfall ranged between 100% and 250% of normal across the region. Some northern areas reported in excess of 400% of normal. For the season, most areas had between 60% and 80% of normal, with some spots in the mountains and deserts getting close to 100%.

San Diego - Lindbergh Field Data

	Max	Min	Avg	Rain
APR	67.3	56.4	61.9	0.88
Normal	68.7	56.4	62.6	0.75
Anomaly	-1.4	0	-0.7	0.13
% of normal				117%
Max	73	61		0.41
Min	62	51		

April 4-5

Strong low pressure moved onshore over central California with a strong jet stream and a

subtropical moisture connection reaching southern parts of the state. Rainfall ranged from one-half, to two inches coast and valleys, to two-to-five inches in the mountains. Generally under an inch was reported from the deserts. Snow levels lowered to around 4500 feet, with four to eight inches reported above 5000 feet, and 10 to 15 inches at resorts above 6000 feet. Several strong thunderstorms developed on the 5th over the Inland Empire where warnings were issued for large hail and flash flooding. Several feet of water swelled main stem rivers, however none came close to official flood levels. Several daily rainfall records were established on the 4th, including one-half inch at John Wayne Airport, and 1.22 inches at Ontario International Airport. Flash Flooding was reported near Lake Arrowhead during the evening of the 4th, and some reports of urban flooding were received as well from San Diego County and the Inland Empire.

May

A strong polar jet stream made a dive to the south, generating an unusually late winter-type storm for southwest California on the 21st and 22nd. Otherwise, generally dry, west to northwest flow dominated the weather across the region much of the month, with the typical extensive marine layer moisture and clouds prevalent west of the mountains. Average monthly temperatures ranged from near normal, to as much as four degrees Fahrenheit above normal at Palm Springs.

The only rainfall of significance fell on the 22nd, when a cut-off low pressure center moved inland, bringing a band of moderate rainfall for several hours. Any other precipitation that fell was from the marine layer and usually resulted in a trace or less west of the mountains. Monthly rainfall ranged from over 200% of normal at the coast and in some valleys, to between 50% and 80% in the mountains, to less than 20% in the deserts. For the season, most areas had between 60% and 80% of normal, with some wetter spots in the mountains and deserts.

San Diego - Lindbergh Field Data

	Max	Min	Avg	Rain
MAY	68.7	60.7	64.7	0.77
Normal	69.3	59.8	64.6	0.20
Anomaly	-0.6	0.9	0.1	0.57
% of normal				385%
Max	77	63		0.77
Min	64	58		

May 22

A late-season, cut-off low pressure system brought a band of moderate rain across southwest California early on the 22nd. Rainfall was generally between one-quarter and three-quarters of an inch. Little orographic enhancement was observed, and little if any rain fell in the deserts. Numerous daily rainfall records were broken west of the mountains, including a record set in 1921 at Lindbergh Field, San Diego, where 0.77” was recorded. No significant snowfall was reported. Some urban flooding occurred during the height of the rainfall, otherwise no significant flooding was observed.

June

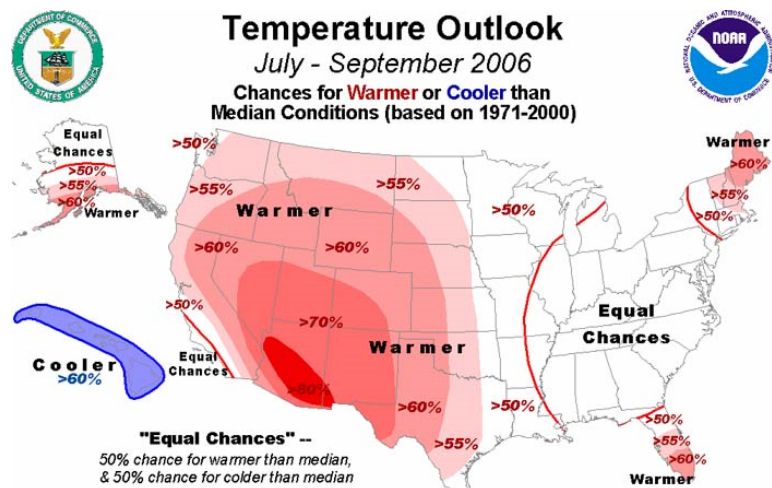
A strong upper-level high pressure area was camped over the southwestern U.S. during the first week of the month, producing an early monsoonal type flow with isolated thunderstorms in the mountains and deserts. The high drifted east, as a low pressure trough developed over the west, bringing cooler and dry conditions through mid month.

San Diego – Lindbergh Field Data

	Max	Min	Avg	Rain
JUN	75.7	65.8	70.8	T
Normal	72.2	62.6	67.4	0.09
Anomaly	3.5	3.2	3.4	-0.09
% of normal				0%
Max	96	70		0.17
Min	68	63		

Monthly rainfall was generally not significant, but highly variable due to the scattered nature of the showers and thunderstorms. For the season, most areas had between 60% and 80% of normal, with near normal amounts mostly confined to the far northern areas of the region.

Seasonal forecasters at the NOAA Climate Prediction Center are expecting above normal temperatures west of the Mississippi, in the state of Florida, in the New England region and in the southern half of Alaska. NOAA cautions the public, these areas could very well expect high temperatures for prolonged days, triggering heat waves and creating wildfire risks in many areas, especially in the West. In contrast, below-average temperatures are expected in Hawaii this season.

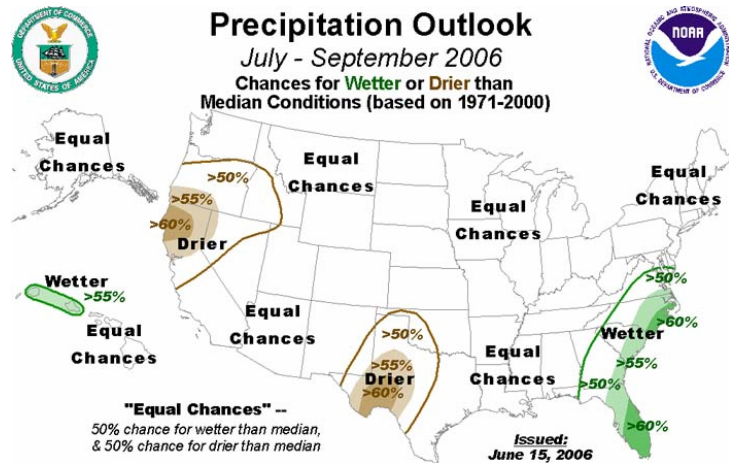


U.S. Drought Status

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"Improvement in drought conditions is likely along the Gulf Coast states and up the Appalachians," said Douglas Lecomte, NOAA Climate Prediction Center's drought specialist. He added, "Although we cannot count on major relief for much of the drought stricken area in the central and southern Plains, the outlook for the next two weeks does call for less heat and increased rainfall to provide some reason for near-term optimism."

"With El Niño/La Niña neutral conditions in place, seasonal weather will be driven by more subtle impacts from global sea surface temperatures along with random fluctuations of the circulation pattern and feedbacks from ground and soil content levels feeding back into the atmosphere," said Michael Halpert, NOAA Climate Prediction Center's seasonal forecaster.



Spotter and Skywarn News

The Skywarn leadership and the NWS met at a meeting held on June 13. The organization of the group was laid out and the procedures for activations were discussed. **New Skywarn training** is under development and will soon be added to our web page along with the basic spotter training. This training will be required for all new Skywarn members upon joining. For existing Skywarn members, the training will be required within one year. Part of the training includes online weather education. The following list contains the best online weather education I could find.

The NWS San Diego's Weather Guide

This weather companion gives weather history, glossary, climate overview operations of NWS, and much more: newweb.wrh.noaa.gov/sgx/research/Guide/weather_guide.php?wfo=sgx

Online tutorials

www.srh.noaa.gov/jetstream

[ww2010.atmos.uiuc.edu/\(Gh\)/guides/mtr/home.rxml](http://ww2010.atmos.uiuc.edu/(Gh)/guides/mtr/home.rxml)

Disaster Preparedness

www.fema.gov/hazard/index.shtm

emergency training courses: training.fema.gov

General weather basics education

cwx.prenhall.com/aguado/

www.usatoday.com/weather/resources/basics/wworks0.htm

www.weatherworks.com

eo.ucar.edu/basics/index.html

Advanced weather education

A warehouse of great learning modules: meted.ucar.edu/

Interpretation of weather models

meted.ucar.edu/nwp/course/modules.php

weather.unisys.com/model/details.html
www.theweatherprediction.com/models/

Skywarn activations will become more adaptable to the forecasters' needs. For example, if a radar goes out of operation, Skywarn may be activated to find information to fill the huge gap of data lost by the inoperable radar. Activations may also be driven by event or geography. For example, if we have thunderstorms in the San Bernardino Mountains, but nowhere else, we could activate Skywarn only in that area.

A Note from the Skywarn Region Coordinator

Good News! Although there have been many changes to the program lately, they are changes for the better. I have asked Jim Courter, KF6RWF, to be the Asst. Region Coordinator and he accepted. I have also asked Camille Popik to return as our Public Info. Officer (PIO) and she accepted as well.

Camille is upgrading the Spotter Database so that the Area Coordinators will have current information for their Spotters. If you are new to SW CA SKYWARN (or haven't been active lately) and haven't been contacted by your Area Coordinator yet, please feel free to contact them directly via email.

Everyone's email address, except for Mike Collins, is on the SW CA SKYWARN website under the "Contacts" page. Mike's email should be there soon. I had a catastrophic computer failure and lost all of my SKYWARN data including access to the website. However, I have almost fully recovered and should be able to update the website by the time you read this. Thanks for your patience.

We now have Coordinators for all four Areas. Along with Mike McLaughlin, KJ6EQ, in Orange and Phill Dupree, KG6ZHW, in San Bernardino, we now have Eric Hutchins, K7ELH, for San Diego County and Mike Collins, KG6BJG, in Riverside. We also now have a Communications Coordinator (formerly Station Manager) with the arrival of Kent Tiburski, K6FQ to the team. Kent will have the overall responsibility for making sure the NWS Amateur Radio station is up to snuff and he will be appointing Assistants to help in staffing the station, training Communications Operators, maintaining Technical Standards and anything else that needs oversight with regard to the NWS Station.

With the arrival of everyone, we are now almost fully staffed and can move toward making SW CA SKYWARN a top notch organization again.

There are new training requirements and opportunities in the works and should be made public soon. These new items will be for the betterment of SKYWARN. They shouldn't hamper anyone much and only have to be completed every two years. More on this subject in the near future (and on the website <http://swskywarn.org>). I think that we might be busy this summer as well as hot. Please stay tuned for news and information.

Thank you,
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Region Coordinator
Southwest California SKYWARN

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Weather Spotter web site: newweb.wrh.noaa.gov/sgx/spotter/spotter.php?wfo=sgx
Coast to Cactus can always be found on this page.
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newweb.wrh.noaa.gov/sgx/research/Guide/weather_guide.php?wfo=sgx
Southwest California Skywarn web site: swskywarn.org
Change of: Address (email or home)? Phone numbers? Equipment? Ham radio status?, etc. Please email miguel.miller@noaa.gov with the changes.
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